



NATO Communications and Information Agency

# C2-Simulation Interoperability in NATO

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# Agency Reform



NATO CIS Services Agency



NATO Consultation, Command  
and Control Agency



NATO Air Command and Control  
System Management Agency



Active Layered Theatre Ballistic  
Missile Defence Programme Office



HQ Information, Communication,  
Technology Management



## VISION

To strengthen the Alliance through connecting forces, by the end of 2014, the NCI Agency Team:

Optimises NATO mission success and be recognised as the trusted enabler of information superiority and enterprise excellence;

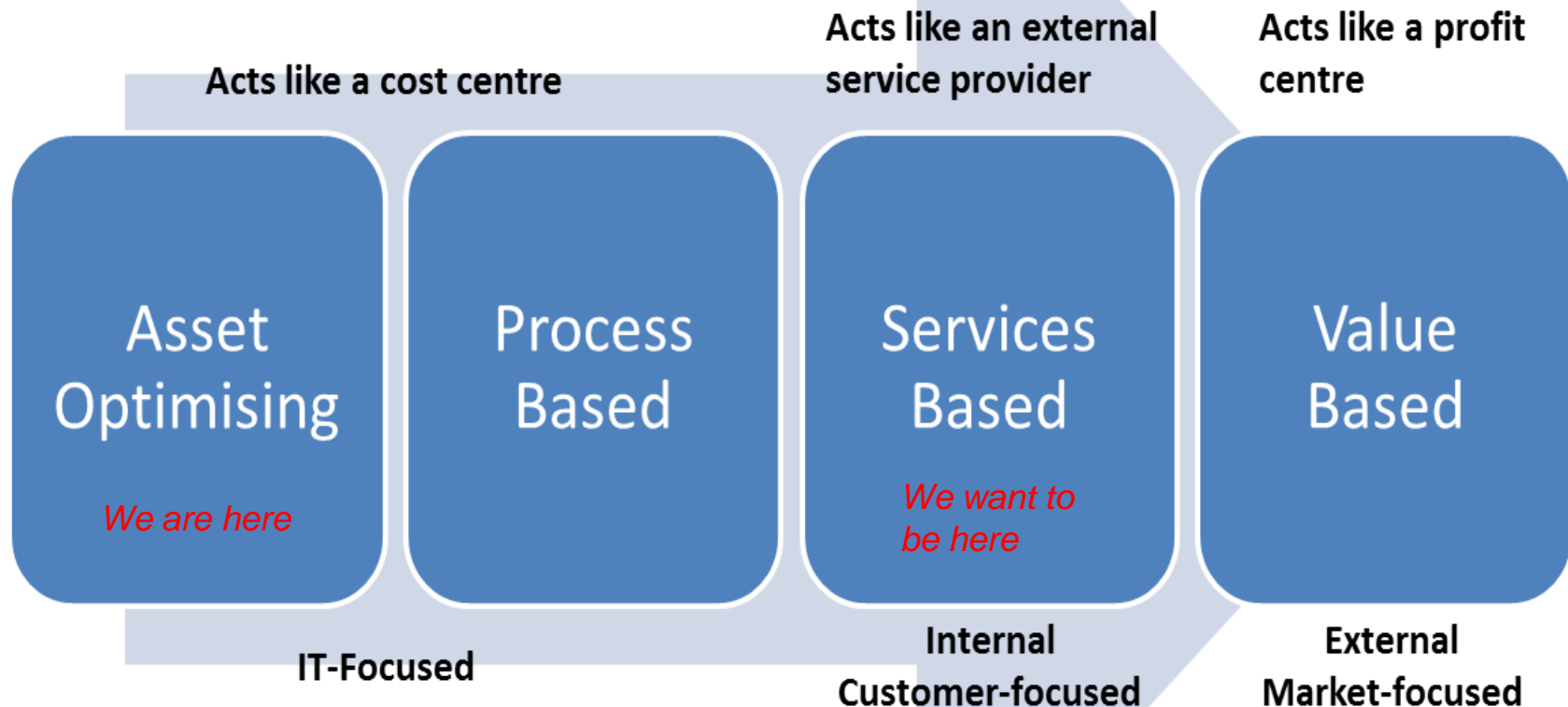
Uses best practice to develop, deliver, connect and protect capabilities in partnership with other NATO entities, nations and industry;

Earns customers confidence through agility, innovation and by delivering coherent and cost-effective solutions.

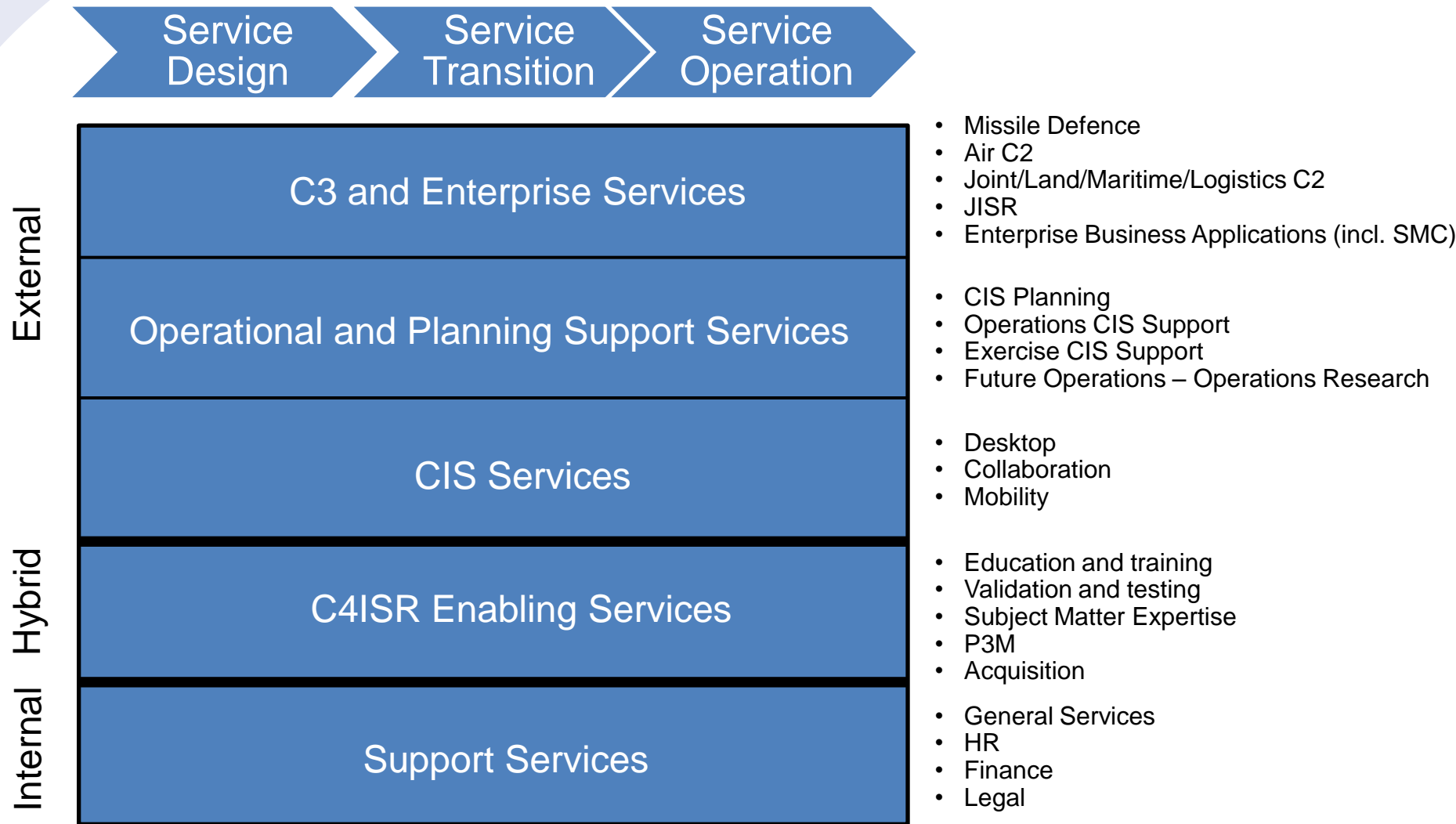
***“Connecting Forces”***



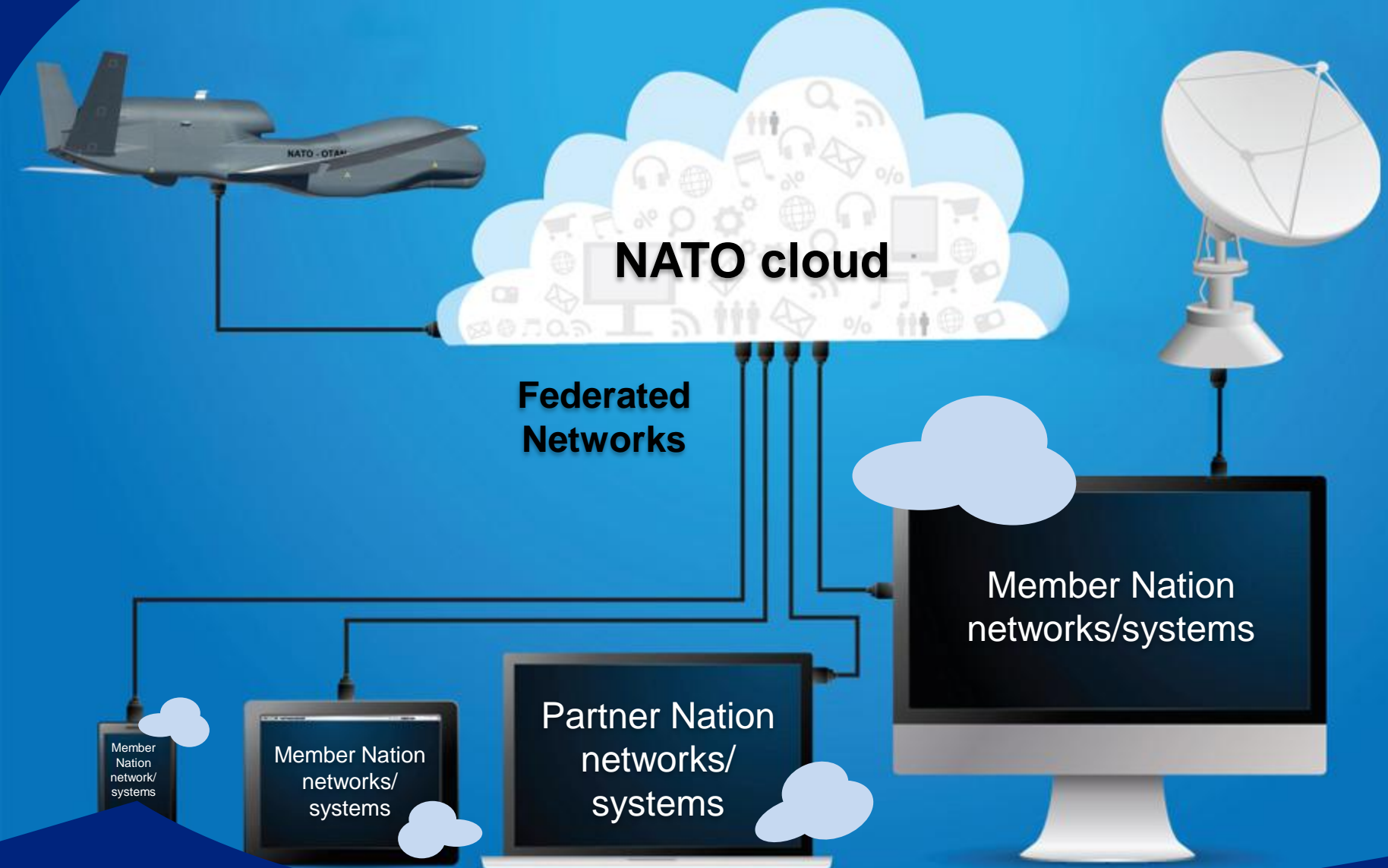
# The Journey to a Services-Based Organisation



# Service Lines



# Future vision ?





# C2-Simulation Interoperability – Why?

- Integrate simulations as new C2 capabilities for
  - Planning
  - Training
  - Mission Rehearsal
- Exploit simulations for
  - C2 Concept Development and Experimentation
  - C2 Testing



# C2-Simulation Interoperability – How?

- Leverage/merge existing standards (e.g., JC3IEDM, MIP-DEM, HLA)
- Harmonise/merge standards: (MSDL, C-BML)
- Develop additional standards (SINEX, DSEEP Overlay)
- Engage C2 and Simulation standards development organisations (MIP, SISO, NMSG)
- Engage operational user community

# C2-Simulation Interoperability – Who?

## NATO Modelling & Simulation Group

2006-09	MSG-048 – Coalition Battle Management Language (C-BML)
2010	MSG-079 – C-BML Workshop
2010-14	MSG-085 – Standardisation for C2-Simulation Interoperability
2013	MSG-119 – C2-Simulation Interoperability Workshop

## Simulation Interoperability Standards Organisation

C-BML Product Development Group  
MSDL Product Development Group

...and many national R&D groups/activities

# Current State and Way Ahead

- C-BML has been assessed as useful and applicable for the exchange of orders and reports between C2 and simulation systems
- Expected benefits include increased effectiveness and efficiency of exercises, planning, and operational decision support
- A draft C-BML standard exists, as do prototype implementations of C-BML capabilities in operational C2 systems, simulations, and exchange mechanisms
- Development and implementations of additional C2-Sim interoperability related standards are underway

# C2-Simulation Interoperability in NATO

- General NCI Agency “Areas Of Interest”
  - Testing
  - C2 Decision Support
  - Training and Exercise Support
- Specific “Use Cases”
  - Coalition Interoperability Assurance and Validation
  - (Joint) Operational Planning
  - Exercise Control Services

# C-BML Opportunities in NATO

- NATO is all about interoperability, based on common vocabulary and common language
- JC3IEDM  $\approx$  vocabulary, C-BML  $\approx$  language
- Each enables interoperability, but at different levels
- C-BML
  - Is *one* of the enablers of information sharing, not the only one!
  - Enables leveraging of NATO's investments in MIP for enhanced interoperability
  - Fits within the SOA based NATO C3 Classification Taxonomy

# State Of The Art: Some Improvement



2010:

[“Adopting joint”: interoperability through \*\*convergence\*\*. – Free ...](#)

**C4ISR** Command Control Communications Computers Intelligence Surveillance and ..... and user interface software released in 1985 to run on top of **MS-DOS**.

...

2013:

[PPT] [\*\*C4I – M&S Convergence Opportunities and Challenges for C-BML ...\*\*](#)

<ftp.rta.nato.int/public/PubFullText/RTO/.../MP-MSG-079-15.ppsx> ▼

**C4I – M&S Convergence Opportunities and Challenges for C-BML in NATO.** Dr. Hans Jense. Chief, Exercises and Training (CAT-3). Contents. Background ...